



# Pre-release Product Information

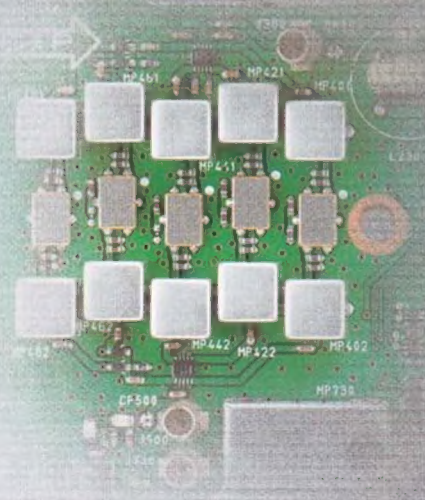
## COMMUNICATIONS RECEIVER

# IC-R9500

## Roofing Filter



## DSP Unit



# Professional Communications Receiver



# Super performance, multiple functions

## +40dBm IP3 and

### 110dB wide dynamic range

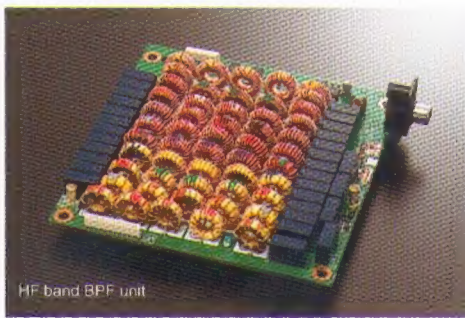
Only Icom's wideband receiver technology can achieve this high specification with 0.005–3335MHz coverage. In HF bands, it has 110dB wide dynamic range and +40dBm IP3. Even in 144/430(440) MHz and above 2GHz band, it has +5dBm IP3 capability. This high specification means the IC-R9500 allows you to listen to weak signals between strong adjacent signals.

### "Measuring" class accuracy

The IC-R9500 uses an OCXO (Oven Control Crystal Oscillator) unit which is stable to within  $\pm 0.05\text{ppm}$  at 0°C to 50°C. A 10MHz reference frequency can be input and output allowing you to connect with external equipment. Signal strength indication can be selectable from "dBμ" and "dBm" unit.

### Superior BPF unit

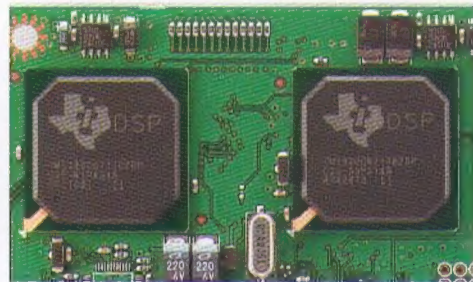
For the BPF (Band pass filter) unit, the IC-R9500 uses stable mechanical relays and large inductors instead of switching diodes and small coils which can cause distortion. This combination reduces distortions at the primary stage of signal processing.



HF band BPF unit

### Dual DSP

The IC-R9500 incorporates two independent, 32-bit floating point DSP units, one for receiver and the other for the spectrum scope. By having two independent DSP units, the radio will respond to operator changes in an instant, as each DSP unit has a dedicated function.

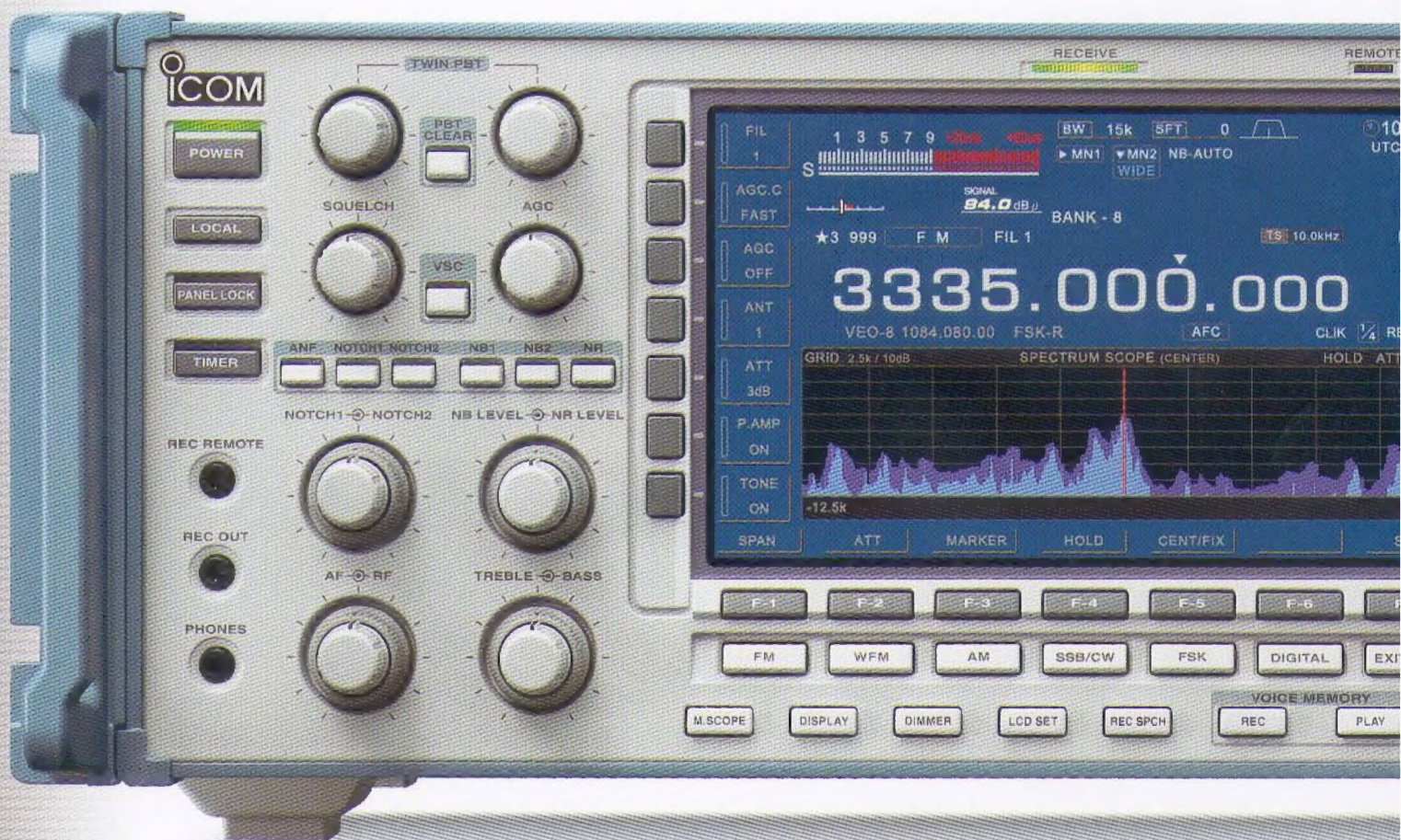


### 7-inch wide color TFT LCD

The large 7-inch wide (800 × 480 pixels) active matrix display delivers quick response time, high resolution and wide viewing angle. The multi-function spectrum scope is displayed in vivid color. In addition, the IC-R9500 has a VGA connector allowing you to connect an external monitor.

## COMMUNICATIONS RECEIVER

# IC-R9500





# On wideband "measuring" receiver

## High resolution spectrum scope

The IC-R9500 will have normal and wide spectrum scope functions. The normal spectrum scope covers a range from  $\pm 2.5\text{kHz}$  to  $\pm 5\text{MHz}$ , while the wide spectrum scope\* will cover a wider frequency range still to be decided. When using the normal spectrum scope, the digital scope filter width is selectable from 200Hz to 20kHz allowing you to find a weak signal right next to strong ones. The sweep speed is also selectable.

Also, there is a setting to allow for specific scope edges or center the span on the receiving frequency. The peak search function automatically moves the marker to the peak point on the scope screen. In addition to these features, the scope has 3 levels of attenuator (10dB, 20dB, 30dB).

\* While using the wide spectrum scope function, AF output is muted.

## Two channel noise blanker

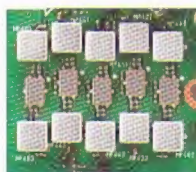
The DSP controlled noise blanker significantly reduces pulse type noise. The IC-R9500 has two noise blanker memories; you can set attenuation width, depth and blank time parameters by each channel and allows switching between channels depending on the operating mode.

## Digital IF filter

The digital IF filter allows the operator to adjust the filter shaping (sharp or soft), filter bandwidth, and center frequency characteristics, without missing the received sound. The digital twin PBT narrows and shifts the IF passband, and efficiently eliminates interfering signals.

## Five roofing filters

Before the 1st amplifier, the IC-R9500 has five roofing filters. You can select the filter widths from 240kHz/50kHz/15kHz/6kHz/3kHz, depending on operating mode. The 50kHz roofing filter allows you to receive NOAA weather satellite APT pictures in FM mode.



## Two-point manual notch filter

The digital manual notch filter reduces more than 70dB at two points with adjustable filter width (wide, middle, narrow). It means two strong beat signals can be eliminated at once even while using the auto notch filter.

## Synchronous AM detection

The synchronous AM (S-AM) detection provides less distorted audio than normal diode detection and it is useful when fading occurs or signal level is low. The R9500 can create exactly the same frequency as the carrier signal by using the DSP unit. In addition, upper or lower side for S-AM demodulation is selectable for eliminating interference from adjacent strong signals.

## 10 VFOs

The IC-R9500 has 10 VFO channels; you can tune and store operating frequency, mode, filter width and other settings. For example, in VFO-1 memories the 7MHz band, VFO-2 for VHF marine band, VFO-3 for 1200MHz band, etc, you can quickly change the operating bands by pushing the 10-keypad. When you change the VFO channel, the last setting is automatically stored to the channel used before.

## Digital voice recorder

The IC-R9500 has an internal digital recorder capable of storing received communications. While the recording times vary depending on recording quality, even in HQ (high quality) mode it provides up to 60 minutes (approx.) of recorded audio.

## 1000 memory channels

1000 memory channels store frequencies, modes, filter width and tuning steps. Memory channels are grouped into memory banks. Independent memory and bank knobs are on the front panel. By connecting to a USB keyboard, you can directly edit channel names, etc.

## Multi-scan functions

Numerous scanning functions searching desired stations are available to make operation easier than ever before. The IC-R9500 scans 40 channels per second in memory scan mode.

- Memory scan
- Program scan
- $\Delta F$  scan
- Priority scan
- Selected mode memory scan
- Selected memory scan
- Auto memory write scan

## Additional outstanding features

- 4 antenna connectors: an SO-239 type and a phone (RCA) connector for below 30MHz, two type-N connector for above 30MHz
- Reverse power protection (HF band only)
- AFC function compensates for frequency shifts (FM mode only)
- CW/AM modes auto tuning function
- Optional P25 digital mode reception
- Optional CI-V interface and RS-232C for PC remote control
- VSC (Voice Squelch Control)
- S/PDIF out jack
- Analog TV reception (NTSC/PAL)
- Video input/output





## SPECIFICATIONS

### GENERAL

- Frequency coverage (Unit: MHz) : 0.005–3335.000000\*  
 \* Cellular bands are blocked in the U.S.A. version.  
 France version : 0.005–29.999999 50.200–51.200000  
 87.500–108.000000 144.000–146.000000  
 430.000–440.000000 1240.000–1300.000000
- Mode : USB, LSB, CW, FSK, AM, FM, WFM, P25\*  
 \* Optional UT-122 required.
- Number of memory channels : 1020 (1000 regular and 20 scan edges)
- Antenna connector : SO-239 (50Ω for HF),  
 Phono [RCA] (500Ω for HF),  
 Type-N x2 (50Ω, one each for  
 30–1149.99999MHz, 1150–3335MHz)
- Temperature range : 0°C to +50°C; +32°F to +122°F
- Frequency stability : Less than ±0.05ppm (0°C to +50°C)  
 after warm up (5 minutes)
- Frequency resolution : 1Hz
- Power supply requirement : 100V/120V/230V/240V AC
- Power consumption : Standby 70VA typ.  
 Max. audio 70VA typ.
- Dimensions (W×H×D) (projections not included) : 424 × 149 × 340 mm;  
 16<sup>11</sup>/<sub>16</sub> × 5<sup>7</sup>/<sub>8</sub> × 13<sup>3</sup>/<sub>8</sub> in
- Weight : 18kg; 39.7lb (approx.)
- PHONES connector : 3-conductor 3.5 (d) mm (1/8")
- External speaker connectors : 2-conductor 3.5 (d) mm (1/8")/8Ω

### RECEIVER

- Intermediate frequencies : 1st 58.7/278.7/778.7MHz  
 2nd 10.7/58.7MHz  
 3rd 48k/10.7MHz  
 4th None/48kHz
- Sensitivity :
 

|                    | SSB, CW, FSK | AM    | FM      | WFM   |
|--------------------|--------------|-------|---------|-------|
| 0.100–1.799MHz*1   | 0.5μV        | 6.3μV | –       | –     |
| 1.800–29.999MHz*1  | 0.16μV       | 1μV   | 0.5μV*3 | –     |
| 30.0–3335.000MHz*2 | 0.32μV       | 1.4μV | 0.5μV   | 1.4μV |

 \*1 Pre-amp1 ON \*2 Pre-amp ON \*3 28–29.999MHz  
 SSB, FSK=2.4kHz, CW=0.5kHz, AM=6.0kHz at 10dB S/N  
 FM=12kHz, WFM=150kHz at 12dB SINAD
- Squelch sensitivity (Pre-amp: OFF) :  
 USB, LSB, CW, FSK, FM, AM : Less than 5.6μV  
 WFM : Less than 1μV
- Selectivity (representative value) :  
 USB, LSB, FSK (BW= 2.4kHz) : More than 2.4kHz/–3dB  
 Less than 3.6kHz/–60dB  
 CW (BW= 500Hz) : More than 500Hz/–3dB  
 Less than 700Hz/–60dB  
 AM (BW= 6kHz) : More than 6.0kHz/–3dB  
 Less than 15.0kHz/–60dB  
 FM (BW= 15kHz) : More than 12.0kHz/–6dB  
 Less than 20.0kHz/–60dB  
 More than 150kHz/–6dB  
 WFM (BW= 150kHz)
- Spurious and image rejection ratio : 0.1–30.0MHz : More than 70dB  
 30.0–3335MHz : More than 50dB
- AF output power : More than 2.6W at 10% distortion  
 with an 8Ω load
- Internal modulation distortion : 110dB dynamic range at 14.1MHz 100kHz  
 separation, pre-amp OFF

## OPTIONS



#### CT-17 CI-V LEVEL CONVERTER

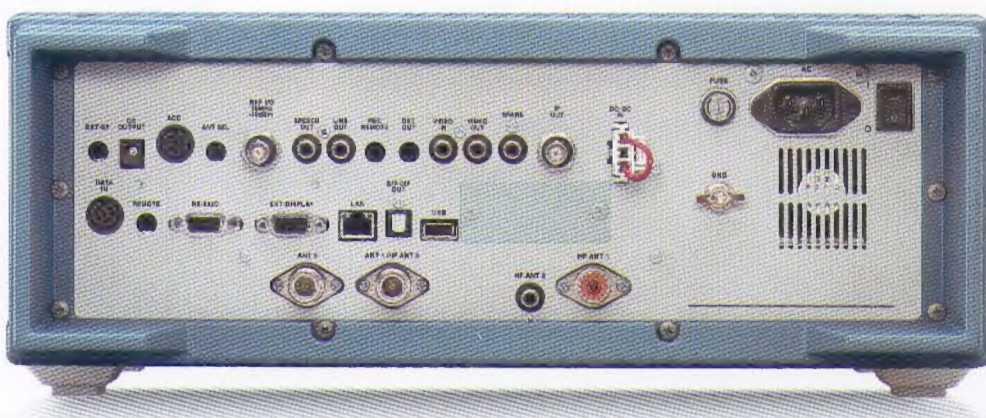
For remote receiver control using a PC with an RS-232C.



#### UT-122

P25 DIGITAL UNIT  
 Provides APCO P25 digital mode reception.

## REAR VIEW



This device has not been approved by the appropriate authorities in each country. This device may not be sold or leased, or be offered for sale or lease, until approval has been obtained. All stated features, appearances, screen shots and specifications may be subject to change without notice. All screens show simulated pictures.

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